

Summary Report for Algebra II

Carnegie Learning, Inc. <i>Algebra II: Common Core Math Course Indiana Edition, Algebra II</i>
Degree of Evidence regarding the Standards for Mathematical Practice: Limited Evidence
<p>Summary of evidence:</p> <ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. There are occasional open-ended questions. Multiple approaches are rarely present in the chapters reviewed. Students reflect and discuss solutions, but implementation depends on the teacher. There are no specific questions asking students to reflect on their answers. Overall, there are few open-ended questions, and students making sense of mathematics is dependent upon the teacher. There is very limited opportunity for students to create a problem-solving plan and follow through or determine reasonableness. 2. Reason abstractly and quantitatively. Many of the questions in the text involve real-world applications (e.g. pp. 315-317), and students are asked to model real-world situations using symbols often. There are many application problems, but the questions are not very open-ended. Algorithms or information is given to students, and then there are opportunities for practice (e.g. p. 319). There are opportunities to apply mathematical ideas; typically the questions are not open-ended. Rarely are students asked to consider the reasonableness of their results. Though there are many application problems, students are rarely required to think abstractly. 3. Construct viable arguments and critique the reasoning of others. The resource intends for students to work problems in groups and present and share methods and solutions with the class, but implementation is dependent upon the teacher. There are symbols in the teacher resource and student text to help prompt student-to-student and student-to-class conversations. There are frequent notes to teachers to have students share their methods and solutions with the class (e.g. p. 310). There are some questions that ask students to explain (e.g. pp. 326, 329 #3), and the end of each section calls for students to share solutions and their methods with the class. There is little to no opportunity for students to make and test conjectures. There are few if any opportunities to justify in the student text – implementation requires the teacher. In the chapters reviewed, there are no error analysis problems or opportunities for students to correct incorrect reasoning given in the text. The student text calls for limited justification or reasoning. 4. Model with mathematics. Often, students are asked to create mathematical models for real-world situations (e.g. pp. 471, 477), but rarely are students asked to revise their models. Students are occasionally asked to make sense of their answer in context of the situation (e.g. write answer in complete sentence – p. 459). Models are used for difficult mathematical concepts (e.g. p. 464). There are several application problems, but rarely are students asked to revise their model or think about reasonableness. 5. Use appropriate tools strategically. In the chapters reviewed, neither tools nor technology are used to investigate mathematics. Calculators are referenced but not necessarily graphing calculators. There is reference to cognitive tutor software (e.g. p. 475); there is no comparison of advantages and disadvantages of tools or technology. Tools and technology are rarely if ever mentioned in the chapters reviewed. 6. Attend to precision. Because of the structure of this resource, there are very few examples worked in the student materials. Teachers will need to model precision. There are answers modeled precisely in the teacher resource. In the chapters reviewed, examples of precise

communication, for example a sample student conversation in the teacher's edition, are not present. The opportunities for communication are mainly referenced in the teacher resource, and there is no specific reference to precision.

7. **Look for and make use of structure.** Students observe patterns to make generalizations about important mathematical concepts (e.g. pp. 339-341, p. 465). The resource moves from specific examples to generalizations (e.g. pp. 352-353). There is limited to no connection to prior learning.
8. **Look for and express regularity in repeated reasoning.** In the chapters reviewed, students are occasionally asked to notice patterns in order to make generalizations (e.g. p. 481). Occasionally, students notice repetitiveness to discover shortcuts. There are few to no opportunities for students to decide reasonableness. There are few to no opportunities for students to generalize a pattern to determine a rule.